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Theorising Synchronization of Organizational Resources in Dynamic Environments

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Abstract

Resource orchestration (RO) in dynamic environments poses challenges during strategic initiatives. Although prior research highlights RO's benefits, little is known about how managerial decisions influence RO over time, potentially leading to inefficiencies. This study examines two multi-year strategic initiatives: an innovative city project and a telecommunications network upgrade for exploring how RO actions adapt to shifting priorities using historical methods and longitudinal data. This study contributes to our understanding by examining RO processes in dynamic environments, offering a framework for synchronizing RO, and proposing a roadmap to guide senior management in aligning initiatives with organizational assets. It highlights the importance of adaptation and ambidexterity. Our findings identify four key synchronization processes—refocusing, descoping, substituting, and deferring—essential for managing strategic initiatives. A framework that aligns organizational capabilities with the benefits of innovation through four synchronization states: 'Drowning', 'Swimming', 'Treading Water', and 'Doggy Paddle' is presented. Implications, future research and limitations are discussed.

Keywords: Sunset Resource-based View; Resource Orchestration; Resource Synchronisation; Strategic Initiatives; Dynamic Environments

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Introduction

Prior research has recognized that the development of the organizational capabilities of a firm is a key enabler for generating and sustaining a competitive advantage (Barney & Clark, 2007; Helfat et al., 2009; Peteraf, 1993). The resource-based view (RBV) is a seminal theory that identifies how key resources and capabilities contribute to a firm's sustained advantage relative to competitors (Guerras-Martin et al., 2014). RBV emphasizes that advantage stems from strategic assets that are valuable, rare, inimitable, and organized (VRIO)) (Chatzoglou et al., 2018; Murcia et al., 2022).

Over the past decade, the resource orchestration framework, which is a theoretical expansion of the Resource-Based View, has emerged to focus on managerial actions involved in organizing resources and integrating them with capabilities to achieve a competitive advantage (Chadwick et al., 2015; Helfat & Martin, 2015; Schriber & Löwstedt, 2018). Key to effective resource orchestration is the synchronization of these actions across organizational units and over time (Baert et al., 2016; Parida et al., 2019; Sirmon et al., 2010). However, much of the existing literature does not fully address how orchestration occurs in dynamic environments, where continuous adjustment is crucial (Baert et al., 2016).

Despite prior studies offering valuable insights, most provide static or backward-looking snapshots of resource orchestration (Chadwick et al., 2015), limiting our understanding of how orchestration evolves dynamically. The literature often neglects the unfolding, real-time synchronization of resource-oriented actions, particularly during strategic initiatives — defined as coordinated efforts to achieve long-term goals such as establishing sustainable advantage or enhancing corporate reputation (Birkinshaw, 1997; Lechner & Floyd, 2012; Rothaermel, 2020). Strategic initiatives often take the form of transformative projects, such as process improvements (Katila & Ahuja, 2002; Lechner & Kreutzer, 2010).

Thus, a key research gap lies in understanding how synchronization mechanisms and managerial actions dynamically align resources and capabilities during strategic initiatives, especially under fluctuating environmental conditions (Chirico et al., 2021; Wilden et al., 2013). Prior research (Sirmon et al., 2007; Helfat et al., 2007) has mainly focused on the static aspects of structuring, bundling, and leveraging resources. This approach gives insufficient attention to how resources are dynamically synchronized across different organizational levels and time periods. Additionally, the role of managerial decision-making, particularly how managers dynamically adapt orchestration processes, remains underexplored in both entrepreneurial ventures and large corporations (Dutta et al., 2016; Barreto, 2010).

Furthermore, although dynamic capabilities theory (Teece et al., 1997) emphasizes adaptability, current resource orchestration frameworks (Sirmon et al., 2011) fail to sufficiently explain how managers make real-time decisions to deploy resources dynamically when strategic needs shift.

Building on these gaps, this study investigates how organizations synchronize resources during multi-year strategic initiatives in highly dynamic environments. It explores the specific mechanisms and managerial actions involved, as well as differences across organizational types such as startups, SMEs, and multinational corporations.

In the innovation literature, resource orchestration has recently attracted attention (Andersén & Ljungkvist, 2021; Carnes et al., 2017; Poulios & Kamperou, 2022; Queiroz et al., 2022; Tikas, 2023). However, there remains a limited exploration of how organizations adapt orchestration practices in fast-changing contexts (Tikas, 2024; Queiroz et al., 2022). Addressing this shortfall, our study formulates three research questions (RQs), each targeting a specific dimension of the orchestration challenge.

RQ1: How do organizations synchronize their resources during strategic initiatives in dynamic environments, and what mechanisms enable effective adaptation over time?

RQ2: How do different types of organizations vary in their approach to resource orchestration during strategic initiatives, and what factors influence these differences?
RQ3: How does the effectiveness of different resource synchronization mechanisms relate to technical, business model, and social innovation outcomes?

To answer these questions, the study analyzes two case studies. The following sections present the analysis and findings, offering deeper insights into how orchestration strategies support innovation goals, enhance competitiveness, and foster societal value. This dynamic perspective enables firms to remain agile and innovative amidst constant external change (see Table 1). ,

Literature Review

RBV stipulates that competitive advantage can be achieved by employing strategic assets and VRIO capabilities resources (Barney & Clark, 2007; Kristandl & Bontis, 2007; Rothaermel, 2020). Tangible strategic resources include a firm's premises, physical equipment, technological infrastructure, and financial resources. In contrast, intangible strategic resources include employees' knowledge and skill set, corporate and brand reputation, leadership style, and intellectual rights and property. Intangible resources are more likely to conform to the criteria of VRIO resources, and thus, a firm aiming to achieve long-term sustainable competitive advantage should prioritise developing and strengthening its intangible resources (Carmeli & Tishler, 2004; Teece, 2000)

However, said sustainable competitive advantage can only be achieved if the firms have in place the organisational systems, processes, policies, structure and culture to leverage the strategic resources and capabilities (Barney & Clark, 2007; Rothaermel, 2020). Three barriers to resource imitation can insulate firms from competitive erosion (Barney & Clark, 2007): (1) Historical Condition, (2) Ambiguity, (3) Social Complexity. These mechanisms emphasise the importance of having resources and structuring and deploying them strategically, particularly

under dynamic and uncertain conditions.

Resource Orchestration and Strategic Initiatives

Resource orchestration, an integration of resource management (Sirmon et al., 2008, 2010; Hodgkinson et al., 2014) and asset orchestration frameworks (Sirmon et al., 2010) involves *structuring* the firm's available resources, *bundling* them into capabilities, and using specific strategies to *harness* said resources to achieve positive organizational outcomes such as a sustainable competitive advantage (Barney & Clark, 2007; Rothaermel, 2020) or promoting innovation (Andersén & Ljungkvist, 2021; Candi & Beltagui, 2019; Nemeh & Yami, 2019; Tikas, 2024). In a dynamic environment, creating an effective "fit" between a firm's resources and strategies demands ongoing "synchronization" of multiple elements within the resource orchestration process (Choi et al., 2020; Helfat et al., 2009; Holcomb et al., 2009). Firms must continuously monitor and adapt to environmental changes (Barney, 2001; Kraaijenbrink et al., 2010; Kristandl & Bontis, 2007). These changes include new competitors entering the market, political shifts, regulatory updates, and evolving economic conditions (Hatani, 2016; Lok & De Rond, 2013).

Strategic change involves firms effectively planning and implementing changes to enhance competitive advantage or achieve other significant objectives (Birkinshaw, 1997; Lechner & Kreutzer, 2010). A strategic initiative requires the mobilisation of a firm's resources to enhance existing organizational and individual capabilities to help a firm achieve its intended targets. Strategic change is steered and managed by upper management (Bruch et al., 2005; Kotter, 2012) and it is quite common to use tangible technical and business benefits to justify resource allocations to a strategic initiative (Hitt et al., 2011). Empirical evidence shows that synchronization can enhance organizational performance (Liu et al., 2016; Pavlov et al., 2017; Sirmon & Hitt, 2009). However, we have limited understanding of which factors promote or impede these positive outcomes. For example, although resource bundling and deployment

augment organizational performance, some forms of resource bundling can adversely affect a firm's performance (Ketchem et al., 2014; Kor & Leblebici, 2005). However, Ketchen et al. (2014) and Kor & Leblebici (2005) warn that not all bundling approaches yield positive results. In fact, poorly implemented resource combinations may damage rather than improve performance.

Organisational Context and Mechanism of Orchestration

Despite the growing focus on resource orchestration, limited attention has been paid to how different types of organizations, such as Small and Medium Enterprises (SMEs), Multi-National Companies (MNCs), or public-private partnerships, tailor their orchestration strategies during strategic initiatives (Lin et al., 2024; Poulios & Kamperou, 2022). Organizational structure, governance models, and sectoral context all shape how resources are deployed and how change is managed. For instance, while MNCs may rely on formal coordination mechanisms, startups might emphasize agility, informal knowledge sharing and collaboration (Appiah et al., 2025; Birkinshaw & Gibson, 2004; Hodgkinson et al., 2014; O'Reilly III & Tushman, 2013).

Recent research also highlights the role of orchestration mechanisms, such as cross-functional integration, resource modularity, and feedback loops in enabling synchronization across organizational layers (Choi et al., 2020; Andersén & Ljungkvist, 2021). Feedback mechanisms, in particular, remain underexplored in the literature, yet they are vital for enabling continuous adaptation during long-running initiatives (Soleymanzadeh and Hjipour, 2025;Balogun, 2006; Schaffer & Thomson, 1992).

This gap suggests the need to explore organizational diversity in resource orchestration strategies. Figure 1 presents our dynamic RO framework for strategic initiatives. The indicated primary relationships illustrated in the RO framework (see Figure 1) are adapted from Sirmon et al. (2007); however, our framework incorporates a feedback relationship, which represents

an under-researched topic in the resource orchestration literature (Balogun, 2006; Schaffer & Thomson, 1992): the process of orchestrating resources in a transitional (dynamic) environment. The consequences illustrated in Figure 1 represent different levels of benefits for innovation- technical, business, and social- that can manifest depending on the strategic focus areas of an organisation.

Innovation Outcomes and the Synchronisation Mechanism

The orchestration of resources can drive multiple types of innovation: technical, business model, and social. Each form of innovation benefits from distinct configurations of resource orchestration.

Technical Innovation Benefits generally refer to more tangible, specifiable aspects of organizational functioning such as IT systems and key technologies (Piccoli & Ives, 2005). By efficiently managing and coordinating resources, organizations within the ecosystem can develop competitive advantages, which are necessary for leading in innovation (Rehman et al., 2021). In open innovation, IT is both an operand and an operant resource (Li & Jia, 2018). As an operand resource, IT supports processes and infrastructure. As an operant resource, IT actively enables innovation processes by facilitating the integration of knowledge across organizational boundaries. IT activity leads to the creation of new capabilities and innovations, such as the development of new products or processes. Furthermore, IT activity promotes interaction among diverse actors (such as universities, businesses, and government) within the ecosystem, facilitating knowledge sharing and creating innovations (Cui et al., 2022).

Business model innovation benefits include the realization of process/operating changes to an organization leading to value creation (Lin et al., 2024; Lu & Zhang, 2022). The benefits of business model innovation in resource orchestration include promoting common prosperity, integrating social responsibility with business success, enhancing competitiveness and contributing to sustainable development. By orchestrating digital resources strategically,

companies can respond to market demands, innovate their operations, and adapt to the evolving digital economy, ultimately leading to improved competitiveness in the global market (Sun et al., 2024).

Social innovation benefits refer to advantages gained from producing or consuming a good/service such as bike-for-work schemes (Rosenbaum & Wong, 2015). Resource orchestration allows social innovations to be scaled up by utilizing the strengths of collaborative networks (Faccin et al., 2020). Orchestrators play a crucial role in ensuring that successful initiatives can be replicated or adapted to different contexts, increasing their impact and reaching larger populations (Wenger et al., 2023). The study identifies new orchestrator roles - designing, bridging, and legitimizing - which are vital for the success of social innovation. These roles differ from those observed in technological innovation and require a nuanced understanding of social dynamics. By fulfilling these roles, orchestrators help ensure that collaborative networks are functional and capable of delivering tangible social outcomes.

Toward a Dynamic Resource Orchestration Framework

Resource orchestration refers to managerial actions that structure initiatives through acquisition or divestment of products or services with bundling that combines or recombines them by deploying resources and capabilities for leveraging through modular sequencing (Sirmon et al. 2025). These efforts can result in novel and useful technical outcomes achieved through faster cycles. During these cycles products with higher quality and new features appear as technical innovations (Nambisan and Sawhney, 2011). These technical innovations with architectural advances perform better with support of synchronisation mechanism (Nambisan and Sawhney, 2011). Synchronisation mechanism in this context refers to a combination of temporal fit that orchestrates resources required for opportunities of reducing wait times in the process (Oostvogels et al. 2024). The fit of the interface helps lowering friction during integration of processes, or improving information fit that looks after asymmetry in the information and

relational fit that delivers innovation through complementarities (Iyer et al. 2023). The design orchestration supports resource orchestration by synchronising timings, information and interfaces (Mechitov et al. 2007). Integration of these for information about exploration vs exploitation helps maintaining higher standards required for amplifying orchestration and improves opportunities for technical innovation (Li and Jia, 2018).

When adopting the lens of business model innovation, resource orchestration provides a view of structuring, bundling and leveraging from the perspective of opportunities for enabling managers to capture, create and deliver value through pricing strategies required for channel or business relationships for structuring the overall costs (Teece, 2010). The synchronisation mechanism aligns times and tasks between actors for governance (Roehrich et al. 2023). Such innovation of business model works on recombining capabilities for creating value to be considered contemporary by the stakeholders through application of data science combined with service operations (Pereira et al. 2024). Sequential investments of capital and talent for discovery, validated for scaling of value can be distributed through reconfigured partnerships with suppliers, channel members and other platforms (Zeng et al.2023).

Importance of social value innovation by companies is recognised by stakeholders as inclusion, environmental concern, impact on health or education (Mair et al.2023). Resource orchestration helps companies to achieve social innovation goals by applying synchronisation mechanism for adoption of legitimate initiatives and scale them in a complex setting that involves movement of actors at a fast pace (Mair et al. 2023). Focus on social innovation requires investments into infrastructure required for management in a way that builds a trustworthy platform where community members can make themselves heard without restrictions and review rigidity that hampers the efficiency and governance (Addo, 2022).

Figure 1 presents an updated Dynamic Resource Orchestration (RO) Framework tailored for strategic initiatives in dynamic environments. Building on Sirmon et al. (2007), the framework introduces a feedback mechanism, reflecting how strategic initiatives must continuously realign resources in response to changing conditions (Balogun, 2006; Schaffer & Thomson, 1992).

This dynamic orchestration fosters synchronized innovation across technical, business model, and social domains, yet the specific synchronization mechanisms that influence diverse innovation outcomes remain inadequately studied (Andersén & Ljungkvist, 2021; Sun et al., 2024). *The primary and feedback relationships being argued in this study about resource orchestration with synchronisation mechanisms adopt a multi-dimensional view. Building on resource-based view (RBV) with dynamic capabilities (DCV), this study emphasizes on structuring, leveraging and renewing resources for building competitive advantage with open and social-innovation. Studies like Simran et al (2011) discussed how resource orchestration when viewed from the lens of resource-based view enable managers to structure their actions around acquisition and bundling that supports mobilisation and coordination as leveraging of resources required to either renew existing ones or create new advantages as endowments in the form of capabilities and outcomes. Another research conducted by Malone and Crowston (1994) discussed primary relationships in the model about formal and informal mechanisms for alignment of activities in time and across units as synchronisation mechanism discussed temporal pacing, cross-functional integration routines with interface standards in modularity for boundary objects and incentives by operationalising Galbraith's information-processing view of coordination theory. These studies along with Zott and Amit (2010) and Porter and Marker (2011) have looked at innovation benefits as total innovation budget for efficiency and quality with technical features through recombining modularity for learning curves as Total*

Innovation Budget (ITIB), value based logic as a part of business maturity innovation index (BMIB) along with Strategic Innovation Budget that focuses on social innovation and shared values for improving social outcomes with legitimacy and licensing based operations for social welfare of stakeholders. These primary relationships claim that effectiveness of resource orchestration on benefits with role of synchronisation mechanism in a setting that discusses binding and structuring of resources as insufficient without synchronisation depends upon dynamism and interdependence. These studies explain why resource orchestration is not only a source of innovation, although it enables and reshaping technical, business and social innovation as realized benefits.

Thus, this research addresses three interconnected gaps:

- How resource orchestration mechanisms operate under dynamic environmental conditions (RQ1),
- How different types of organizations tailor resource orchestration during strategic initiatives (RQ2),
- How synchronization mechanisms influence diverse innovation outcomes (RQ3).

By focusing on these interrelated questions, this study advances theoretical and practical understanding of dynamic resource orchestration in strategic initiatives.

[Insert Figure 1 about here].

Methodology

To investigate strategic initiatives adopted by companies to orchestrate their resources in a dynamic environment, this study adopted an approach like prior studies that focused on RO by using historical methods to analyse exemplary cases (Berends et al., 2016). Analysis of two longitudinal case studies were conducted to depict the processes of resource orchestration and

synchronization within their natural settings (Street & Ward, 2012). Given the small number of cases, this study aimed to translate experience and observation into theoretical insights using episode analysis (Lechner & Floyd, 2011).

For applying a selection criterion for choosing the organizations and their strategic initiatives for this study, first, the change initiative needs to be large-scale to accommodate a shift in strategic priorities, which would challenge managers to dynamically adapt their resource orchestration to switch from one benefit realization to another. Second, to examine the RO processes of the strategic initiative, the change initiative needed to be in-house and managed by the parent organization. Third, the change initiative had to draw upon the organisation's resource base so that reciprocal relationships and synergies in the RO processes emerge between the change initiative and the parent organization. Two change initiatives met said case selection criteria: the first case-study organization is labelled Destinytech (anonymized), and its change initiative, called *SustCity*, involves the development of a 'smart city'; the second organization is labelled Initech (anonymized) and its change initiative EvoInitech involved revamping the organisation's mobile telecommunications network.

Our selection of cases may be considered atypical; however, the study of atypical cases can shed light on more typical cases by considering phenomena *in extremis* (Hällgren et al., 2018). The demographic characteristics and roles of the interview participants for the two case studies conducted in the analysis was outlined i.e. Case Study 1 - Destinytech and Case Study 2 - Initech. The profiles provide essential context for understanding the perspectives shared by participants during the interviews, which focused on key organizational themes such as resource synchronization, organizational viability, leadership transition, employee retention, and performance metrics. The participants in the Case Study 1- Destinytech, were all male and of English nationality. The sample consisted of three key individuals, each occupying distinct and influential roles within the organization. These roles are pivotal in understanding the

organizational dynamics and decision-making processes discussed in the interviews. The inclusion of participants from both executive and external consulting roles enables a comprehensive understanding of Destinytech's organizational challenges and strategic responses. For Case Study 2 - Initech, demographic details of the interview participants were unavailable due to the orgin of study - the unit of analysis is not the individuals but resource synchronisation processes. As a result, the insights derived from the Initech case study are based on the thematic analysis of responses rather than specific demographic profiles. Nevertheless, the interview questions explored similar themes as those in the Destinytech case, allowing for comparisons of organizational performance and strategic responses across different contexts.

For method involved was an iterative process of data collection, verification and validation. Each case was researched for approximately 18 months. The gathered information about the change initiative and the parent organizations from multiple sources was across three levels: the organization, the project and programme, and the actors involved in the change initiatives. The source of the data collected includes status reports and other publicly available information (see Table 2). To 'track' changes to innovation benefits realization in each change initiative (Wang et al., 2007), three workshops (every 6 months) were conducted with respondents to develop concept maps (see Table 2) from words (e.g. quotes), ideas (e.g. how change manifests) and tasks (e.g. how changes were accommodated). Said concept maps (see Figure 2) were used to probe into innovation benefits realization to explore the changes to participants' perception of benefits realization, understand the challenges to these changes in benefits realization and examine how the changes were implemented for benefits realization.

[Insert Table 2 about here]

[Insert Figure 2 about here]

The respondents in each workshop were selected purposefully to ensure that they possess in-depth knowledge about the strategic initiative and its management. However, managers at different hierarchical levels were interviewed to ensure that operational (e.g. project managers), tactical (e.g. strategic initiative managers) and strategic (e.g. account executives) views were captured. Semi-structured interviews were used to gain a more contextual understanding of the concepts of innovation benefits realization and resource orchestration as semi-structured interviews can emulate a naturalistic conversation for capturing a detailed snapshot of respondents' beliefs, perceptions, and accounts of a particular phenomenon (Galletta, 2013). The questions focused on the key actions taken in the strategic initiatives. This approach to data collection has enabled us to establish a near-complete timeline of the two change initiatives in their natural settings.

Case Analysis

A processual analysis was then conducted to provide insights into the underlying patterns. For each strategic initiative, a narrative was developed, and case summaries were produced and reviewed by the organizations to ensure accuracy. Each narrative was divided into distinct phases or episodes (Langley, 1999) that highlight the continuity of activities within each phase. The analysis considered change in three types of innovation benefits: technical, business and societal. The perceived innovation benefits were rated by the respondents into three levels: low-, medium-, and high-innovation benefit certainty. For example, low-innovation benefit certainties include innovation benefits that are not established, ambiguous, or likely to change. The collective data generated from this analysis produced a rich narrative describing the strategic initiatives, including the context in which they operated, the innovation benefits they realized, and how they changed the resource base. To enhance data reliability and validity, several measures were implemented. First, a detailed chain of evidence linking data to findings

was maintained (Eisenhardt, 1989). Second, for employed member checking, sharing preliminary analyses with participants for verification and refinement was used (Creswell and Clark, 2017). Third, a systematically compared findings across different data sources to identify and resolve inconsistencies was helpful (Eisenhardt, 1989).

Case: Destinytech (SustCity)

Destinytech a privately-owned international business focuses on developing innovative and sustainable city-scale technologies (Siala et al., 2023). Destinytech brings together technology corporations, educational institutions, and other partner organisations to facilitate and accelerate technological innovation to address the challenges of escalating urbanization. Destinytech's strategic change initiative, SustCity, is a 1,700-hectare greenfield site that serves as a research and development platform for Destinytech and its partners. The dynamism in innovation benefits realization from SustCity is represented by the process maps in Figure 3.

[Insert Figure 3 about here]

Table 3 shows the shift in priorities from realizing the societal vision of sustainable urbanization to a financially viable business model for Destinytech.

[Insert Table 3 about here]

The analysis was performed by structuring the context in episodes. Episode 1 focussed on benefit realization was analysed to explore how social innovation by Destinytech initially envisioned a business model that fosters social change through the development of sustainable smart cities (Siala et al., 2023). SustCity is a societally driven strategic initiative that was launched to achieve this vision of a smart city, which drew interest and investments from large organizations. This model refers to partnership of large organisations with smart city vision

emphasizing the pain- and gainsharing. Next, episode 2 – Transition towards technical business model explained how Destinytech's resource base expanded significantly; however, the social innovation benefits realization declined due to austerity measures implemented by EU governments, which partially funded the project (Siala et al., 2023). This shortsighted approach adversely affected Destinytech's key decision-makers. As one Program Manager of SustCity put it, the situation was akin to a "Ferrari slowed down by land deals." Consequently, the reduction in funding led to a noticeable decrease in benefits, prompting a drastic shift in focus from business feasibility to technical feasibility Third, episode 3 focussed on technical/business innovation benefits realization reflected on the lack of funding and protracted negotiations about tax exemptions in a partnering country led to an offsetting remedial strategy that included conducting smaller, concurrent projects for upgrading existing construction sites to provide greater yield in a shorter time (Siala et al., 2023). Those concurrent projects were meant to keep Destinytech afloat and invigorate engagement with its partners.

Resource orchestration

SustCity, in Episode 1, focused its attention on the RO actions of acquiring and leveraging a resource base. Episode 2 led to a major transition, in which the team descoped and refocused their efforts shifting priorities from a societal change initiative to a technically viable business undertaking. Table 4 and Table 5 outline the RO and synchronization actions of SustCity. During episode 1, the focus was on acquiring strategy and how SustCity significantly mobilized resources and capabilities due to the uncertainty of surroundings, particularly the high-risk real-estate projects funded by governmental and private sponsors. In the start-up phase, Destinytech recruited individuals from high-tech companies on a pro bono basis. Destinytech’s ecosystem comprises 300 organizations, including consultancies, high-technology firms, real-estate firms and architects. Investors were attracted by the alluring high-risk, high-reward potential

associated with smart cities and the opportunity to augment their reputation through such a sustainably labelled investment. However, they eventually became reluctant to invest the lion's share to realize this vision of a smart city. For Episode 2, transition needed refocusing, descoping and substituting and suffered from the lack of funding and led to the redeployment of resources and capabilities in smaller projects such as the re-development of existing parts of a city or buildings. This action of descoping the initial vision of societal change to more feasible short-term projects had ramifications on the 'visionary' managers of Destinytech. This suggests that the 'visionaries' and 'innovators', seen as advocates for societal impact, were challenged by business realities. The diminishing financial support from EU governments led to the decision to lease the existing urban technologies to other providers. This change in focus to a technology-led business provided the traction needed to sustain the start-up towards the growth stage. The episode 3 meant for leveraging required ongoing tensions started to emerge between visionaries and operations managers leading to further scope changes that ultimately eventuated in the realisation of SustCity (Siala et al., 2023). The organization moved away from its ambitious social goals to a more pragmatic approach, emphasizing technically viable business projects. This transition involved downsizing the original vision and focusing on smaller, more manageable projects that could generate revenue and sustain the company in the short term. Leadership changes were also made, with the more visionary leaders stepping back and technically focused managers taking the reins to drive the business forward.

Resource Synchronisation

The lack of funding, rising costs, declining business model innovation benefits, and rising uncertainty collectively threatened Destinytech's viability. The Destinytech ecosystem was a pain/gain-share contractual agreement where risks and opportunities are shared between clients, contractors, and the supply chain. This challenge of long-term sustainability led the

visionaries to cede their role to operationally minded individuals who can generate income from smaller projects to keep SustCity afloat. The failure to realise the societal vision of a sustainable urban city led some employees at Destinytech to question their role resulting in a lack of internalization of capabilities. This restricted Destinytech from defining a permanent core team for the entrepreneurial organization to enter a growth phase.

[Insert Table 4 about here]

The contextual issue behind these episodes was explained by the Programme manager of SustCity in following words:

> *"It's the time when the entrepreneur might need to stand aside and become more the Chairman, a strategist, developing the visions and have other people taking over."* (Program Manager SustCity)

Case: EvoInitech

EvoInitech is a strategic initiative involving a managed-services partnership between Initech and a mobile phone operator called Prodos. This was a major change as Initech had to shift from being a hardware and system supplier to becoming a service provider. The contract stipulates that Prodos retains ownership of all IT assets and networks while Initech's responsibility is to manage the operations of the network. This strategic initiative involved a radio network rollout, the maintenance of existing 6,000+ radio base station sites and the management of the core network and operations centre. This change initiative started with a relatively higher perceived certainty of societal, technical and business model innovation benefits (see Figure 4 and Table 5), but through the course of 18 months, this initiative had to adapt to accommodate a shift in priority from a technical focus to one that emphasizes technical

innovation benefits to Prodos and business model innovation benefits to Initech.

[Insert Table 5 about here]

[Insert Figure 4 about here]

First episode analysed was focussed on benefits realization considering social innovation including technical ones were managed and how service agreement involved subsuming one thousand Prodo employees into Initech. Initech experienced a challenge of transition from being primarily a technology provider towards becoming a full-service provider for Prodos. Second, episode 2 about Transition towards technical business model revealed although Initech assimilated former employees of Prodos, the transition towards a full-service provision to Prodos involved further capacity challenges: the global shortage of IP staff caused Initech to struggle with mobilizing its resources and consequently, it had to outsource the IP change management process, which led the strategic initiative to experience higher staff turnover and steeper costs. Third episode focussed on business/societal benefits realization. EvoInitech's transition to a full-service provider meant that it had to maintain uptime service-level agreements. EvoInitech had to also upgrade a network that required specialized and scarce resources, but the human resources that were transferred from Prodos fell short of the standards of the service level agreement with Prodo.

Resource Orchestration

EvoInitech faced a shortage of the specific capabilities needed for growing in a service-oriented market. Table 6 outlines the RO and synchronization actions of EvoInitech. In the tables 2 to 7, the strength of evidence has been categorised as follows: ‘A’, evidence from more than three interviews; ‘a’, evidence from less than three interviews. ‘B’, evidence from more than two archival sources (such as status reports, etc.); ‘b’, no evidence from internal documents (such

as status reports, etc.). The analysis based on episode 1 reviewed transferring, acquiring and accumulating. Prodos transferred resources to Initech to maintain and upgrade a mobile network. However, 70% of the transferred workforce remained on flexible contracts, which led to integration challenges. The second episode analysed was focused on transition, which revealed that issues related to resource shortfall i.e. the shortfall in resources led EvoInitech to refocus the realization of its benefits to better leverage its resource base by emphasizing the attractiveness of EvoInitech as an employer, which includes highlighting its unique career development opportunities. The third episode reflected on issues related to enriching and mobilizing of resources and explained how Initech eventually invested in training its permanent staff to address the shortage in IP capabilities, but the scarcity of IP capabilities persisted despite these enrichment efforts. Initech paid a salary premium to convert former temporary personnel to sign permanent contracts. Initech's global reach helped recruit and retain employees for EvoInitech and the increased external competition for capabilities reinforced the need to focus on societal (internal) benefits to enable EvoInitech to maintain high business benefits realization.

[Insert Table 6 about here]

These challenges were explained by the Programme manager of the company in following words:

"…what made this place here so different was, everyone didn't think of product, we thought of operator, we thought about customer and that was all we thought about. We also recognized that outsourcing work is not good business, and we would like to build competencies that will give us the ability to use external pools of talent…" (Business Unit Leader Initech)

Resource Synchronisation

In contrast to SustCity which faced a viability challenge, EvoInitech faced the challenge of sourcing specific expertise to maintain service levels to Prodos (Siala et al., 2023. A workforce of temporary workers – up to 70% at EvoInitech – was unsustainable. To develop internal talent and expertise, professional development activities were incorporated into the employment package of the employees that were subsumed into EvoInitech and engineers on temporary contracts were offered permanent contracts. However, at some stage, the demand for technical expertise outstripped the organizational capability to attract additional engineers and the processes of acquisition and accumulation led to an inflation of the resource-based costs associated with Initech's strategic initiative.

[Insert Table 7 about here]

The context was explained by one of the managers in following words:

"… half of the problem is that because they know [people with IP skills], they expect high salaries … it becomes more challenging to get the right people into those places and keep them there." (CTO EvoInitech)

Discussion

This study explored how resource synchronization unfolds during strategic change initiatives by examining the differing resource orchestration processes across initiative life cycles, and how continuous synchronization enhances strategic fit with changing environmental and organizational demands.

While prior research has highlighted the importance of resource orchestration for dynamic capabilities (Hitt et al., 2011; Sirmon et al., 2008; Helfat et al., 2009), this study advances theory by conceptualizing resource synchronization as a dynamic, evolving capability that

enables the continuous realignment of innovation benefits with organizational capabilities. We extend the literature by identifying four distinct synchronization mechanisms — Refocusing, Descoping, Substituting, and Deferring — that allow organizations to dynamically adjust their initiatives in response to evolving conditions. Furthermore, we introduce a novel conceptual framework (see Figure 5), categorizing organizations into synchronization states of Swimming, Treading Water, Doggy Paddle, and Drowning, thus offering new explanatory insight into how synchronization quality impacts innovation outcomes.

The findings directly address RQ1 by identifying the specific processes (Refocusing, Descoping, Substituting, Deferring) that organizations employ to manage and synchronize their resources. These processes enable adaptation by allowing organizations to dynamically adjust their approach based on changing resources and environmental conditions, answering the question of how synchronization occurs and which mechanisms enable adaptive strategies over time. Refocusing, a process of concentrating and adjusting the breadth of activities. This transformative process addresses shifts in priorities of the strategic initiative (e.g. from socal innovation benefits realization to technical innovation benefits realization). *Descoping* is the process of reducing the scope of activities by discarding some activities to save resources or to focus on more important aspects of the project. For example, in response to a shortfall in the funding of SustCity, descoping was implemented by running smaller construction projects in tandem with SustCity to provide financial support to the parent organization. *Substituting* is the process of changing actors and roles, such as reconstituting project leadership. For example, the process of refocusing required a change in leadership (focus) for SustCity. *Deferring* is the process of procrastinating any concentration of activities due to an inadequate resource base. At SustCity, for example, the shift in priorities from a societally (externally) driven strategic initiative towards a technically business-driven strategic initiative was facilitated by

Destinytech's time-demanding reconfiguration of their resource base. In a similar vein, EvoInitech harnessed the existing capabilities offered by its parent organization Initech to cope with a shifting priority from technical/business to business. The continuous, time-demanding aspiration and commitment to maintain, expand, and enhance the resource base facilitated this shift, although said resource orchestration efforts for employee retention at EvoInitech ultimately inflated the cost of the resource base and reduced the flexibility to divest resource

[Insert Figure 5 about here]

The findings expands on RO2 that synchronization mechanisms are not static but evolve alongside shifts in benefit prioritization. Strategic initiatives such as SustCity and EvoInitech demonstrated adaptive transformations in their benefit orientation from social to technical, and from technical to business model innovation illustrating that synchronization involves not just internal resource adjustments but dynamic realignments of strategic aims. Organizations recalibrate their focus and resources in tandem, ensuring that synchronization supports emergent opportunities rather than adhering rigidly to initial goals. This highlights synchronization as a longitudinal, learning-driven capability that evolves to maintain fit between organizational ambitions and environmental realities.

The findings for RQ3 address the relationship between synchronization mechanisms and organizational outcomes by categorizing organizations into different states of synchronization effectiveness. The four states of synchronization effectiveness are Swimming, Treading Water, Doggy Paddle, and Drowning. Each state reflects distinct levels of alignment between capabilities and benefit realization:

- Swimming denotes high alignment and high realization of innovation benefits, representing effective synchronization.
- Treading Water reflects organizations with strong capabilities but unclear or

shifting benefits realization under uncertainty.

- Doggy Paddle characterizes organizations with clear benefit targets but insufficient or unsuitable capabilities.
- Drowning signifies both a lack of clear strategic benefits and deficient organizational capabilities, leading to innovation failure.

These states demonstrate that synchronization quality critically influences innovation outcomes across technical, business model, and social innovation domains. High synchronization fosters resilience and performance; low synchronization increases vulnerability to strategic drift and resource inefficiency

The insights generated from the two case studies led us to propose a new conceptual framework for resource synchronization (see Figure 5), which advances theory in two important ways.

First, it conceptualizes resource synchronization not merely as resource reallocation, but as a dynamic capability that facilitates the continuous realignment between strategic benefit realization and organizational capability development over time.

Second, it introduces a typology of synchronization states (Swimming, Treading Water, Doggy Paddle, and Drowning) offering a nuanced explanation of how varying degrees of synchronization influence innovation outcomes.

In our framework, when both strategic benefits and organizational capabilities are low, the organization enters a Drowning state, characterized by high uncertainty, limited capabilities, and few achievable benefits. Although exploration may uncover future opportunities, the organization lacks the immediate means to generate value.

Through deliberate resource orchestration, momentum can be gradually built by enhancing capabilities and clarifying objectives, progressing toward the Swimming state. Swimming represents high synchronization where strong capabilities are tightly aligned with

strategic benefit realization, enabling organizations to perform effectively and safely within dynamic environments.

Meanwhile, organizations that possess developed capabilities but experience unclear benefits realization operate in a Treading Water state, maintaining existing structures without achieving significant progress. Capabilities are underutilized in such settings. Conversely, organizations that have clear benefit aspirations but insufficient or misaligned capabilities are found in the Doggy Paddle state, where the ambition to realize innovation benefits is not matched by the operational ability to deliver them.

By distinguishing these states, our framework contributes a deeper understanding of how synchronization evolves dynamically, offering theoretical insight into the interplay between capabilities and benefit realization over time — an area previously underexplored in the resource orchestration literature (Hitt et al., 2011; Sirmon et al., 2008).

Beyond theoretical advancement, the findings provide critical managerial implications. To sustain synchronization, managers must practice improvisational capability reconfiguration (Andersén & Ljungkvist, 2021; Baert et al., 2016), such as reassessing workforce skills, outsourcing tasks, or bridging resource gaps through complementary initiatives (Choi, Lee, & Kang, 2020). Building organizational ambidexteritybalancing exploitation of current assets with exploration of new opportunities—is key to sustaining adaptability (Birkinshaw & Gibson, 2004; O'Reilly III & Tushman, 2013). Aligning strategic initiatives with available capabilities while fostering managerial flexibility enhances the overall synchronization effectiveness (Helfat & Martin, 2015; Ketchen et al., 2014).

Managers should systematically assess organizational strengths and weaknesses (Carmeli & Tishler, 2004; Cardeal & Antonio, 2012), leverage cross-functional collaboration platforms, and apply real-time monitoring tools (Galletta, 2013; Street & Ward, 2012) to stay

responsive. Resource governance frameworks such as RACI matrices (Helfat et al., 2009; Kor & Leblebici, 2005) further support clear accountability and resource alignment. Thus, continuous resource synchronization emerges as a strategic imperative for organizations navigating complex, uncertain environments (Teece, 2000; Sirmon et al., 2007).

Implications, Limitations and Future Research

This study offers a significant theoretical contribution to the resource orchestration (RO) literature by uncovering the recursive relationship between organizational conditions and resource orchestration processes through specific synchronization mechanisms in strategic initiatives. The findings show that, prior to taking strategic action, managers often create new events, structures, constraints, and opportunities (Weick, 1995), which subsequently reshape the organizational context. This dynamic reinforces the idea that the innovation benefits generated can in turn alter the very resource base and capabilities that supported them. The recognition of this recursive relationship provides a foundation for further theorization of dynamic strategic management processes.

Although the strategic initiatives studied were contextually distinct, theory development in this research was grounded in the epistemological assumption that comparative case analysis can identify recurring patterns, issues, and mechanisms across cases (Eisenhardt, 1989; Buchanan, 2012; Langley, 1999). Through analytic refinement (Tsoukas, 2009), we developed a refined conceptual framework that integrates emerging RO research and, to a lesser extent, the resource-based view (RBV). Nevertheless, while this framework extends current theory, it requires further empirical validation across different organizational and industry contexts to strengthen its generalizability.

In addition to theoretical contributions, this study offers practical implications for managers engaged in dynamic strategic initiatives. It emphasizes that managers must

proactively develop dynamic synchronization capabilities that allow continuous realignment of resources in response to shifting priorities and environmental changes. Organizations should institutionalize formal mechanisms for resource flexibility, such as cross-functional team structures and modular project management approaches, to enable faster reallocation of skills and assets. Furthermore, embedding iterative feedback loops and real-time monitoring into strategic initiatives can help detect emerging misalignments early, allowing managers to make timely adjustments. Developing resource buffers—such as maintaining surplus technical expertise or financial reserves—also enhances an organization's agility. In addition, organizations need to foster ambidexterity not only at the executive level but throughout operational and project teams, encouraging both the exploitation of existing strengths and the exploration of new opportunities. Managers should tailor synchronization strategies according to the stage of the initiative, promoting greater flexibility during early exploratory phases and enforcing more structured resource consolidation during later stages of implementation. These practices provide a clear operational roadmap for enhancing innovation outcomes through effective resource synchronization.

Despite its contributions, this study is subject to several limitations. The research was based on two strategic initiatives conducted within specific industry, organizational, and geographic contexts, which may have influenced the findings. SustCity operated in the urban development sector within a European environment characterized by strong public-private collaborations and regulatory frameworks, while EvoInitech operated in the technology innovation sector in a North American market-driven setting. Furthermore, the firms differed significantly in size, with SustCity representing a larger, more bureaucratic organizational form compared to EvoInitech’s smaller and more agile structure. These differences suggest that the processes of resource synchronization and their effectiveness may vary depending on industry

characteristics, firm size, and regional institutional environments. Consequently, caution must be exercised when generalizing the findings to different contexts.

Future research should investigate how synchronization mechanisms differ across industries characterized by different levels of environmental turbulence, resource dependency, and strategic horizons. Comparative studies between small, medium, and large enterprises could illuminate how organizational size affects the capacity for dynamic resource synchronization. Moreover, further exploration of how national and regional institutions influence resource orchestration practices would enhance understanding of contextual contingencies. Research should also move beyond individual initiatives to examine how organizations manage portfolios of concurrent strategic initiatives, which often compete for shared resource pools. Longitudinal studies employing process-tracing or sequence analysis methodologies would be particularly valuable in capturing the evolving and recursive nature of resource synchronization efforts over extended periods.

In conclusion, while this study advances understanding of resource synchronization in strategic initiatives and provides a foundation for future theoretical development, broader empirical testing is needed to refine and generalize the proposed framework across diverse organizational and environmental settings.

Conclusion

Our study provides practical insight into the challenges surrounding RO processes and how they change and interact with each other in a dynamic environment. The core contribution of this study is revealing the recursive relationship between organizational conditions and RO processes in strategic initiatives through specific synchronization mechanisms. When managers act, they bring events, structures, constraints, and opportunities that were not evident before. They consider action and then set them in motion. This is indicated by those feedback

relationships, which show how the innovation benefits obtained can alter the organizational assets under which they were generated. Another key contribution of this study is our proposed conceptual framework for RO and synchronization of strategic initiatives in dynamic environments, which draws on concepts of organizational ambidexterity and the resource-based view. We have also proposed a roadmap to guide senior management on how to facilitate alignment between strategic initiatives and an organisation's core assets. Our proposed roadmap demonstrates how our findings can translate into practical, actionable, and transferable insights that can guide senior management in their decision-making in regards to RO, enabling them to streamline their efforts in aligning strategic initiatives with core assets to achieve sustainable business growth and success in the long run.

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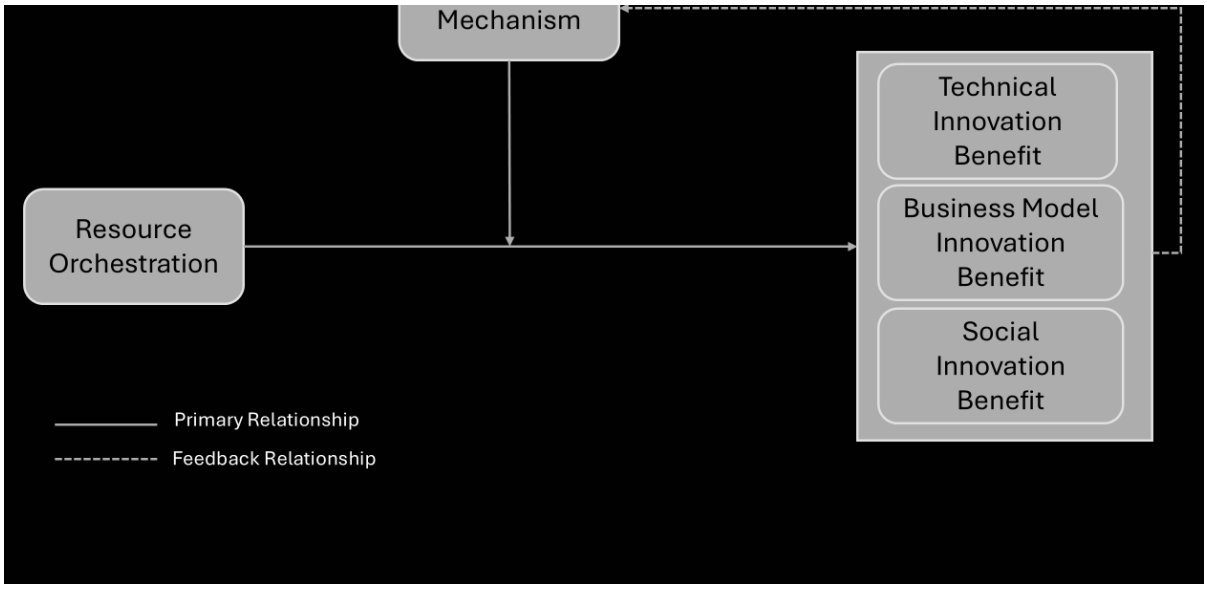


Figure 1. A dynamic resource orchestration framework for strategic initiatives (adapted from Sirmon and colleague's RO framework)

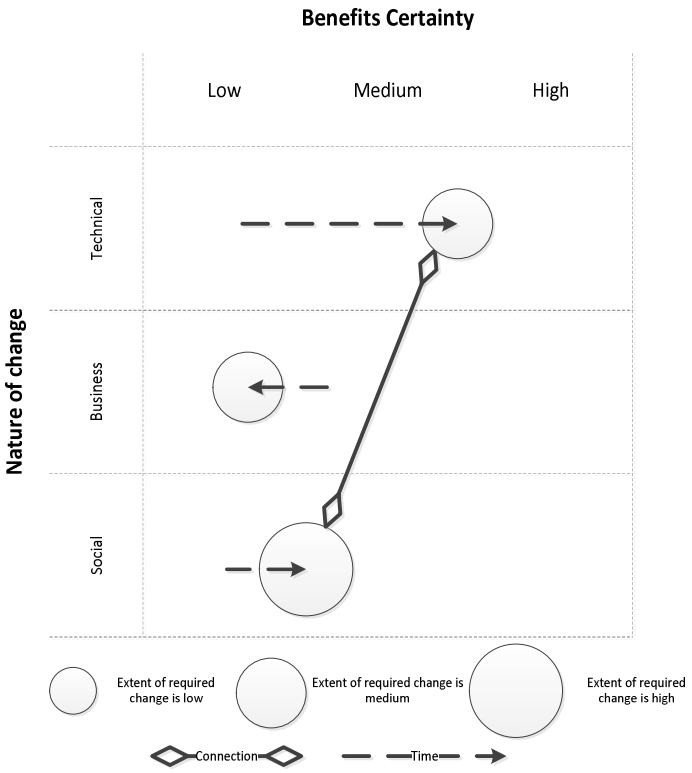


Figure 2. A simplified example of a concept map

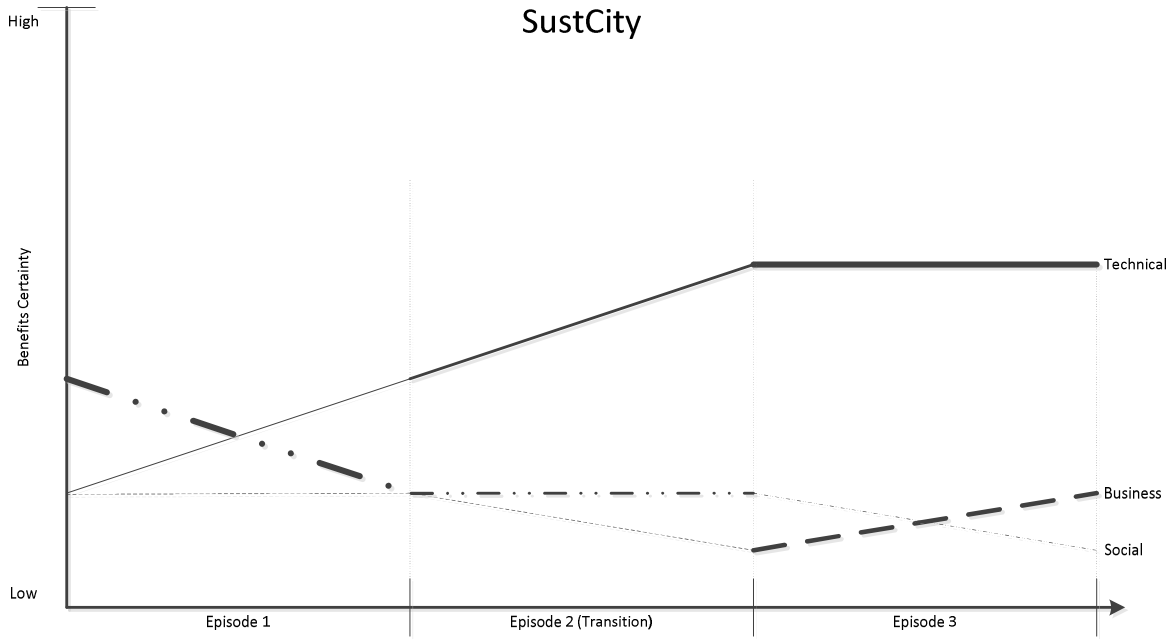


Figure 3. Benefits realization in the case of SustCity

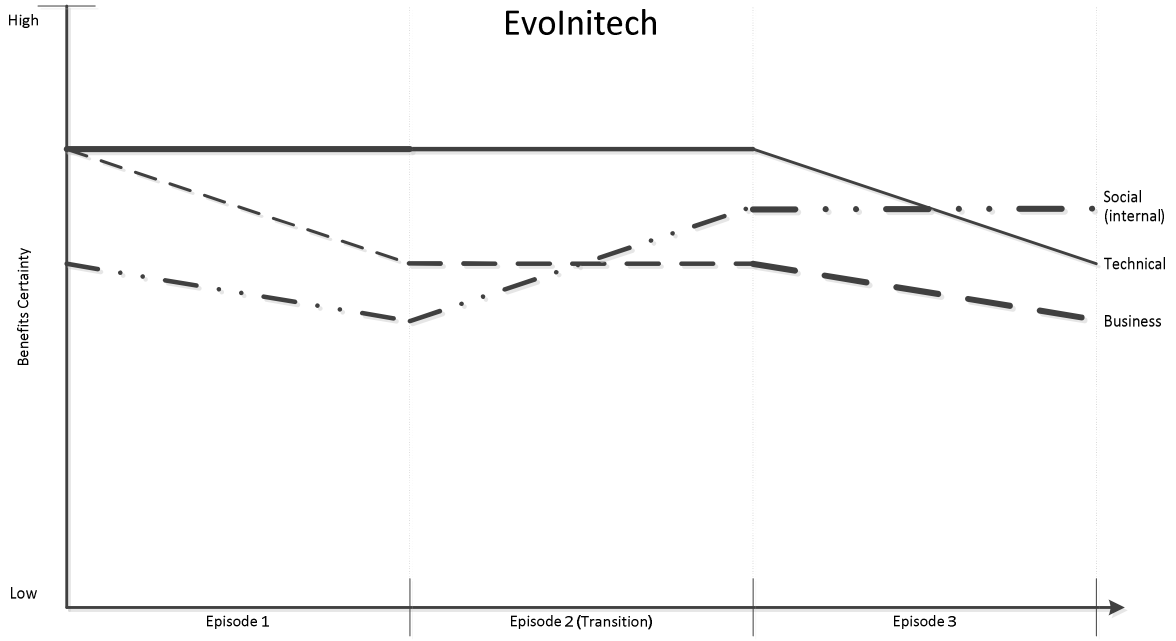


Figure 4. Benefits realization in the case of EvoInitech

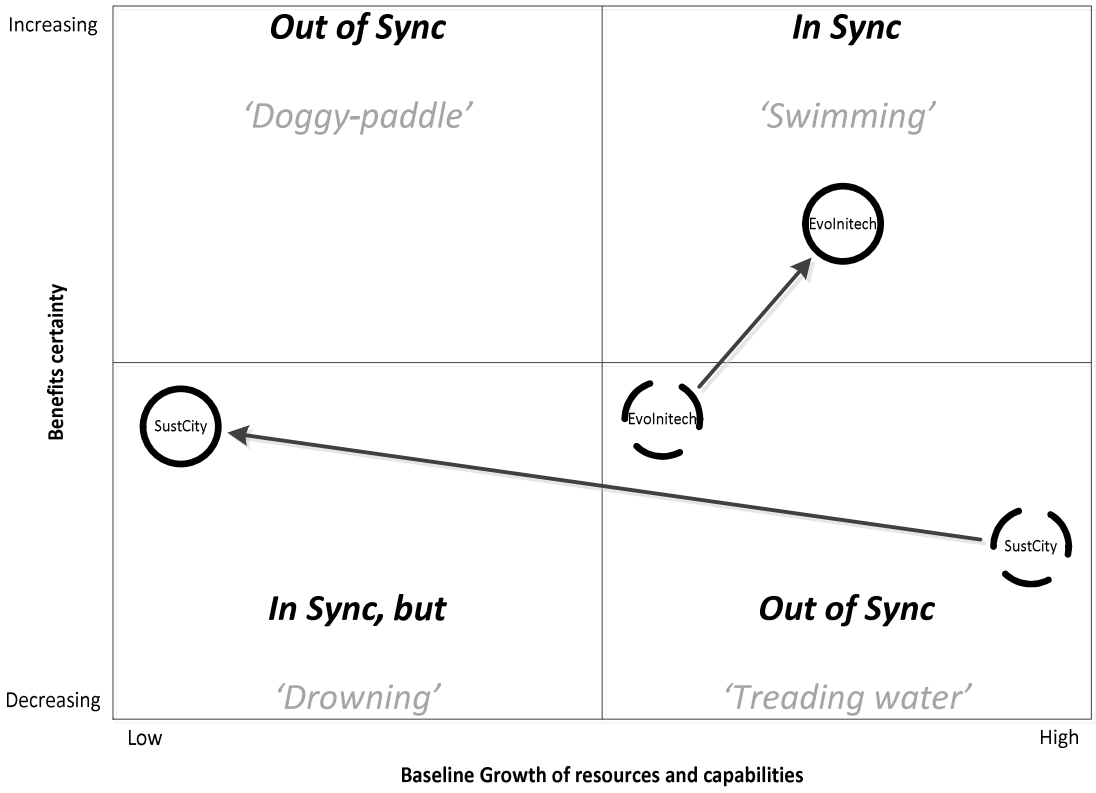


Figure 5. Change orchestration and aspects of synchronization (with aggregated realization and growth scores)

Table 1. Literature Review

Study	Research Methodology	Empirical Context	Key Findings on Resource Orchestration	Synchronization Mechanisms Identified	Limitations	Future Research Directions
Tikas (2024)	Empirical study, multiple studies design	Public R&D organizations (India)	Three sub-dimensions of resource orchestration: adaptive structuring, synergistic leveraging, decentralized decision-making	Implicit synchronization through decentralized resource adjustments	Limited to public-funded R&D organizations in India	Extend to private sector and international R&D contexts
Andersén and Ljungkvist (2020)	Case Study, Interviews, Secondary Data	Swedish business press outlets	Team-based innovation for managing resources and capabilities	Coordination across team-based innovation processes	Focused on customized products	Study innovation orchestration in national contexts
Hodgkinson et al. (2014)	Case study	Service industry organizations	Orchestration supports organizational ambidexterity	Synchronization between exploration and exploitation	Focused on service industries	Apply to manufacturing and tech industries
Ketchen et al. (2014)	Case study	Supply chain settings	Identified orchestration gaps affecting efficiency	Synchronization challenges across supply chain	Limited to supply chain	Extend to healthcare and education
Liu et al. (2016)	Survey	IT and supply chain managers	IT orchestration enhances integration and performance	IT-based synchronization for cross-unit collaboration	Focus on IT/supply chain	Include human and financial resources
Pavlov et al. (2017)	Longitudinal study	Multiple sectors	Orchestrated HR and performance management boosts results	Sync between internal systems and strategic goals	Limited external factors considered	Examine market influence
Hitt et al. (2011)	Theoretical	Entrepreneurial ventures	Resource orchestration creates multi-level value	Conceptual synchronization	Lacks empirical validation	Empirical testing in diverse settings

Table 2. Data Sources for the Case Study Analysis

Type	SustCity	EvoInitech	Description
Interviews	28	34	Interviews at upper, middle, and lower management levels every three months
Upper Management	1	3	Includes CEO, CFO, VP, COO, and CTO
Middle Management	24	25	Program, project, and operations managers
Lower Management	2	4	Administrators and systems engineers
Workshops and Focus Groups	2	4	Clarify and validate contextual shift in priorities
Technical summaries and reports	6	11	Internal reports on resource orchestration
Official blogposts	8	4	Support evidence trail on orchestration efforts
Business Press Articles	14	2	Externally produced material on orchestration
Academic papers	8	2	Academic references
Case Studies	3	2	Used to support case analysis
Book chapters	1	0	Additional context
Analyst reports	1	3	Industry-wide sources to inform interviews
Business press articles	13	28	Supplementary press sources

Table 3. Episodic Evidence of Benefits Realisation in SustCity (Destinytech)

Shift in Priority	Environmental Pressures	Illustrative Quotes
Social (external) → Technical/Business	Funding for SustCity, Utilization/retention of in-house employees, Developing a commercially viable technical platform	"I think on the test side...they'll be operating at 80 – 90% efficiency..." [CEO of Destinytech] "So, most of the questions...have dealt with funding issues and resourcing..." [VP of Destinytech] "It's all dependent on funding...kind of a Catch 22." [VP of Destinytech]

Table 4. Episodic Evidence of Resource Synchronization for SustCity (Destinytech)

Action	Definition	Episode 1	Episode 2	Episode 3
Refocusing	Adjusting activity concentration	A, B	A, b	A, b
Descoping	Reducing depth of activities	A, B	a, B	A, B
Substituting	Changing power of influence	A, B	A, b	A, b

Table 5. Analysis of Shifts and Pressures with Illustrative Quotations

Shift	Episode 1	Episode 2	Episode 3	Illustrative Quotes
Social (external) – Technical/Business	A, B, C	A, B, c	A, B, c	"Like Initechs preferred position...this contract is we sell man-days..." [Director of Prodos] "...things that should have been done better are tools and systems..." [Program manager EvoInitech]

Table 6. Episodic Resource Orchestration & Synchronization in EvoInitech

Action	Definition	Episode 1	Episode 2	Episode 3
RO-Transferring	Moving resources between units	A, B	A, b	A, b
RO-Mobilizing	Identifying capabilities to exploit market	A, b	a, b	A, B
RO-Accumulating	Developing internal resources	A, B	A, b	A, b
RO-Enriching	Extending current capabilities	A, B	a, B	A, B
RO-Strategic	Purchasing resources from markets	A, b	a, B	A, b
RS-Refocusing	Adjusting concentration of activities	A, b	A, b	A, b

Table 7. Case Comparison: SustCity and EvoInitech

Aspect	SustCity (Destinytech)	EvoInitech (Initech)
Focus	Sustainable city-scale technologies	Transition to managed-services
Strategic Initiative	1,700-hectare smart city platform	Managed-service with Prodos
Initial Objective	Societal benefits via smart cities	Internal benefits, Prodos staff integration
Episode 1	Acquire resources, societal focus	Transfer resources, customer focus
Episode 2	Refocus/descoping due to funding cuts	Refocus/outsourcing due to turnover
Episode 3	Leverage resources, maintain partnerships	Enrich and mobilize resources
Key Challenges	Funding, cost, leadership changes	Resource scarcity, integration, competition
Resource Orchestration	Acquiring, refocusing, leveraging	Transferring, acquiring, enriching
Synchronization Mechanisms	Pain/gain contracts, smaller projects	Talent training, contract conversion



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Theorizing synchronization of organizational resources in dynamic environments

Siala, Haytham; Kutsch, Elmar; Gupta, Suraksha; Sivarajah, Uthayasankar; Nyuur, Richard ...

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